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Prevalence of mucocutaneous manifestations, oral and palmoplantar findings in 666 patients with COVID-19 in a field hospital in Spain

Dear Editor:

Coronavirus disease 2019 (Covid-2019) has been associated with several cutaneous manifestations(1–3). A temporary field hospital was implemented during the pandemic peak in Madrid, Spain, to attend COVID-19 patients with mild to moderate pneumonia.

A team of dermatologists working as medical volunteers performed a cross-sectional study between April 10 and April 25, 2020 to evaluate cutaneous findings of such patients.

A total of 666 COVID-19 patients fulfilled the inclusion criteria (either positive RT-PCR testing for SARS-CoV-2 or bilateral pneumonia). The mean age was 55.67 years; with a slight female predominance (58%). Remarkably, 47.1% were from-Latin America.

Globally, 304 (45.65%) of our patients presented one or more mucocutaneous manifestations. Oral cavity findings were seen in 78 (25.65%) cases, including transient lingual papillitis (11.5%), glossitis with lateral indentations (6.6%)(Figure 1A), aphthous stomatitis (6.9%), glossitis with patchy depapillation (3.9%) (Figure 1B) and mucositis (3.9%). Burning sensation was reported in 5.3% of patients and taste disturbances (dysgeusia) was commonly associated.

Palmoplantar involvement was observed in 121 patients (39.8%) and included diffuse desquamation in 77 patients (25.3%), often favouring the weight bearing areas and reddish-to-brown acral macules on palms and soles in 46 (15.1%)(Figure 1C and 1D). Mild pruritus was occasionally reported. Fungal cultures of plantar desquamation performed in 9 patients ruled out superficial mycoses. Histological study from the acral macules was performed in 4 patients, showing a mild to moderate lymphocytic infiltrate surrounding the blood vessels and the eccrine

sweat glands. 7% of the patients reported burning sensation (erythrodysesthesia) at the beginning of the disease.

Urticaria (6.9%), rash (2.9%) and vesicular eruptions (1.6%) were observed in a minority of patients. While urticaria and rash were observed at any stage of the COVID-19 infection, vesicular eruptions typically appeared within the first few days of the symptoms. Both urticaria and vesicular eruptions appeared in younger patients than the rest of the mucocutaneous manifestations with statistical significance (p 0.024)

Prior studies have found a significantly lower prevalence of COVID-19 associated dermatoses (20% and 7.8%, respectively)(2,3). The higher prevalence in our study may be due to additional findings non-previously described. Although the oral cavity is frequently involved in viral infections, glossitis or papillitis have not been described in COVID-19 patients(4). However these alterations could also be due to the conditions during hospitalization including ventilation mask, etc. We hypothesize that the contagion risk while examining the oral cavity might have precluded a thorough physical examination in these patients.

Palmoplantar involvement was also a frequent finding. Some patients recalled a burning sensation and redness or swelling of the hands or feet shortly after COVID-19 symptoms began. Erythrodysesthesia is a common complaint secondary to cancer chemotherapy that is thought to be related to direct drug toxicity and inflammation of the eccrine glands(5). Interestingly, several outbreaks of a poxvirus-related erythromelalgia have been reported in China. The first outbreak occurred in Wuhan in 1987, and all patients had respiratory symptoms as well as redness and swelling of the hands and feet(6). Also, burning sensation has been described in childblain-like lesions(1) and there is one self-reported case of a physician with COVID-19 complaining of "pin and needles" sensation in palms and soles with subsequent appearance of acral macules.

A diffuse asymptomatic palmoplantar desquamation was another common but previously unreported finding. Although it could be related to other common conditions such as tinea pedis, patients denied its prior existence and fungal infection was excluded in 9 out of 121 patients.

Skin rashes were relatively uncommon, being observed in 11.6% of our patients. Although a variety of rashes have been previously reported(1), both in children and adults(7,8) the exact prevalence, time of onset and age-specificity remains unknown. Interestingly, pseudo-childblains have been commonly observed in children(1) (some of them with negative RT-PCR or serologies), and were absent in our 666 patients, supporting the age-specificity trend.

Our study has several limitations. First, we only included patients with mild-to-moderate COVID-19 pneumonia and cannot provide data on skin disease in asymptomatic patients or with more severe forms of COVID-19. Second, all patients were adults and the prevalence of mucocutaneous findings may be different in children. Third, as our work was performed in a two-week period, we may have missed earlier or late cutaneous manifestations of COVID-19.

In summary, almost half of patients with mild to moderate COVID-19 admitted in a field-hospital during a two-week period show mucocutaneous findings. Oral cavity is frequently involved and deserves specific examination under the appropriate circumstances to avoid contagion risk. Redness and swelling of the hands and feet, fine palmoplantar desquamation and reddish-to-brown macules can help us to diagnose COVID-19 infection and should be routinely checked.

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Figure legends

Fig 1. Upper panel. COVID-19 oral mucosa findings**. 1A** Glossitis with lateral indentations and the anterior transient lingual papillitis due to the swelling of the tongue and friction with the teeth. **1B** Glossitis with patchy depapillation.

Lower panel. Palmoplantar findings in patients with COVID-19. **1C.** Reddish-to-brown acral macules with a slight desquamation on the feet of a patient. Pathology excluded racial pigmentation showing mild to moderate lymphocytic infiltrate surrounding the blood vessels and the eccrine sweat glands. **1D** Acral macules on the palm of a COVID-19 patient with the same hystopathology.

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